JOHN ASHCROFT
Governor

FREDERICK A BRUNNER
Director

STATE OF MISSOURI
DEPARTMENT OF NATURAL RESOURCES

Division of Energy
Division of Environmental Quality
Division of Geology and Land Survey
Division of Management Services
Division of Parks Recreation
and Historic Preservation

MEMORANDUM

DATE September 15, 1987

TO File West Lake Sanitary Landfill, Permit #118912, St Louis County 0714

FROM Jon B Kraft, Environmental Engineer, Waste Management Program JBK

SUBJECT August 20, 1987 Meeting with Representatives of West Lake Landfill Inc

The above referenced meeting was held in the Waste Management Program (WMP) conference room (13th floor) to discuss the hydrogeologic report prepared to satisfy permit condition #3 and to discuss the financial assurance instrument required as per permit condition #2 of permit #118912 Those in attendance included

Mr	William McCullough	Past President, West Lake Landfill
Mr	William Schifcheck	Geologist, Burns & McDonnell
Mr	Robert Robinson	Project Manager, Burns & McDonnell
Mr	William Whitaker	President, West Lake Landfill
Mr	Thomas R Gredell P E	Solid Waste Permits Unit Chief WMP
Mr	Jon B Kraft	Environmental Engineer, WMP
Mr	Bill Weis	Environmental Engineer, WMP

The hydrogeologic report was the first item to be discussed Discussion was centered on the following list of WMP concerns

1 Sparce discussion of dilution potential

2 Little discussion of groundwater inflow into quarries

3 Little discussion of the limestone "aquifer"

4 Worst case conditions (major flood) not examined

5 Report correlates piezometer levels with river stage but not with precipitation

6 Well D89 is proposed as the upgradient well in the monitoring program But at times the deep groundwater in this area has no measurable gradient

7 Sampling on north side near ditch

8 Sampling and data recording of precipitation

9 What variables and assumptions were used for aquifer flow rate and flow rate into quarry

10 Short term sampling parameters

11 Long term sampling parameters

12 Proposed future wells to be sampled acceptable?

Mr Bill Weis initiated the discussion by stating that the potential for leachate generation, the quality of leachate and potential for dilution are not discussed Water levels are tied to river stages but not to precipitation Parts of the landfill are lined while other parts were not lined The effects of a major flood were not stated

Burns and McDonnell representatives responded that they believe the effects of flooding on leachate generation would be minor They believe rainfall is much more important

If a water balance is performed in the St Louis area, according to Mr Robinson, one anticipates 4 1/2 to 6 inches/year of infiltration in the flatter areas Assume a 60 acre landfill with 6 inches in infiltration Ten million gallons/year would pass through the old portion of the landfill The aquifer fluctuates 6 to 7 feet per year Porosity is about 35% Two hundred ninety one gallons would pass under 119 acres Most of the recharge comes from ponds, ditches and rainwater infiltration in flat areas The dilution occurs at the boundary

The WMP noted that this was not discussed in the report

Regarding the lack of discussion about water inflow into the quarries, Burns and McDonnell stated that significant quantities of water did not occur at the soil bedrock contact Also, there are monitoring wells east of the quarry in the grouted area The water table in these wells is below the level of alluvium Figure III-4 of the report shows the groundwater gradient on the northeast side moving from the alluvium into bedrock

The conversation shifted back to the effects of flooding and rainfall on leachate generation Mr Bill Schifcheck stated that according to his experience in working with levees and relief wells high river stages only influence groundwater levels several hundred feet back from the levee Burns and McDonnell repeated their belief that the effects of rises in water table levels will be insignificant when compared to precipitation Leachate would continuously bleed out Mr Bill Weis said a significant rainfall event might flush out contaminants Burns and McDonnell said they don't think so The WMP asked if assumption of gradual bleeding was based on empirical evidence The answer was, "no"

The discussion turned to the use of well D89 as an upgradient well Mr Bill Schifcheck explained why he believed the deep wells registered a lower water level than the shallow wells (See attachment)

The further away one gets from the valley wall the more even the water levels become Thus, D-89, being very close to the recharge zone, would be a suitable upgradient well D-90 and S-51 may also be suitable since groundwater flowing to these wells does not pass beneath the landfill Another shallow well may be placed southeast of D-89

The next item to be discussed was monitoring in the area of the north ditch Only four (4) wells are proposed for monitoring in this area and three (3) of those are deep wells Burns and McDonnell stated that they were not comfortable with the intermediate wells since they did not put them in The possibility of monitoring the ditch was discussed but discouraged because water in the ditch might contain pollutants that did not come from the landfill It would be physically difficult to install new wells along the ditch Mr Robinson noted that the water levels in the wells in the ditch changed slowly when the water level of the ditch was rising so the well construction may be acceptable

Discussed next were the flow rates given on page III-23 of the report Darcy's Law was employed to derive a flow rate of 500 gallons per day in the shallow aquifer and 400,000 gallons per day in the deep aquifer The WMP asked what values were used for the variables in the equation Burns and McDonnell replied that the flow rates varied considerably so average values were used The rates stated for water flow into the quarry are based on observation

With regard to short term monitoring the WMP agreed that short term monitoring should take place before long term The WMP believes that the short term monitoring should include several parameters and that at least two (2) rounds of sampling should take place Furthermore, long term sampling should include more than just metal parameters

Burns and McDonnell would prefer that a long term groundwater monitoring program be proposed after the short term program is completed and evaluated The WMP recommends in addition to shallow or intermediate monitoring on the north side, that some monitoring points between D-93 and D-89 be employed A monitoring point should also be present in the area of wells S-88, I-72 and I-73

The WMP asked about installing leachate collection wells Burns and McDonnell replied that leachate does not build up on the liner

FINANCIAL ASSURANCE

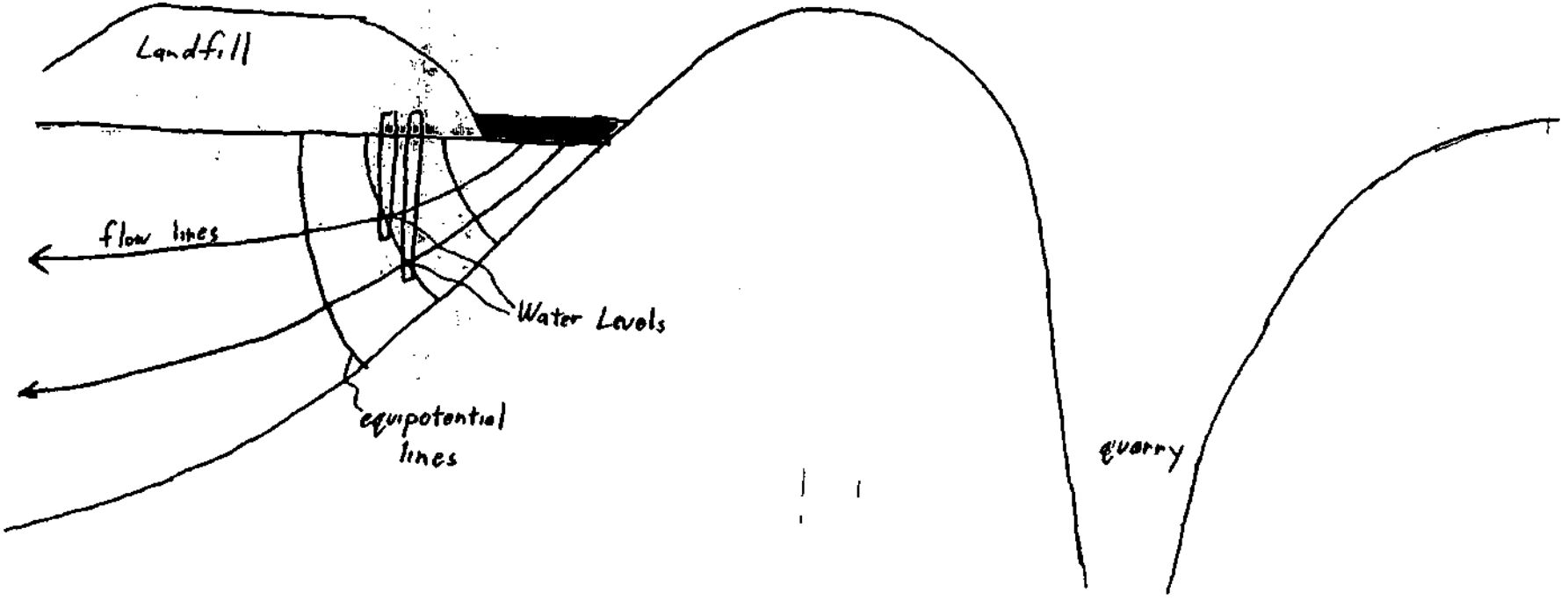
Questions pertaining to the financial assurance instrument must be resolved This financial assurance instrument was agreed to before the current regulations regarding financial assurance instruments were in place Two (2) problems which must be resolved are

1 There is disagreement between the permittee and the WMP as to the nature of the financial assurance instrument The WMP believes that the approved instrument is a trust fund for perpetual care of the landfill West Lake representatives believe that they are to eventually get the money back, and

2 The approved financial assurance instrument probably does not conform to the current regulations since the Department does not have control over the money in the fund

It was not intended to resolve these issues at this meeting Mr Bill Whitaker was provided copies of some documents from the file Mr Whitaker was instructed to contact Ms Carolyn deRoos, DNR Legal Counsel, to try to resolve these issues

JBK lh


Landfill
flow lines
Water Levels
equipotential lines
quarry